AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the following listing of all claims:

1. (previously presented) A method of determining information relating to a contact on a passive contact sensitive device comprising the steps of:

providing a member capable of supporting bending wave vibration,

contacting the member at a discrete location to generate bending wave vibration in the member,

measuring the bending wave vibration in the member to determine a measured bending wave signal, and

processing the measured bending wave signal to calculate information relating to the contact including applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

2. (canceled)

3. (previously presented) A method according to claim 1, wherein the correction applied is based on a dispersion relation of the material of the member.

4. (previously presented) A method according to claim 3, wherein the dispersion relation is modeled by using the bending wave equation in combination with known physical parameters of the material of the member.

5. (original) A method according to claim 3, wherein the dispersion relation is measured by using a laser vibrometer to create an image of the vibration pattern in the member for a number of given frequencies to give the dispersion relation in the frequency range of interest.

6. (original) A method according to claim 3, wherein the dispersion relation is measured using a self-measuring scheme which is incorporated into the contact sensitive device.

7. (original) A method according to claim 1, wherein the information relating to the contact comprises the location of the contact.

8. (original) A method according to claim 1, wherein the information relating to the contact comprises the pressure of the contact.

9. (original) A method according to claim 1, wherein the information relating to the contact comprises the size of the contact.

10. (original) A method according to claim 1, wherein movement of the contact on the member generates a continuous signal which is affected by the location, pressure and speed of the contact on the member, and continuous time data from the continuous signal is used to derive additional information relating to the contact.

11. (original) A method according to claim 10, wherein a neural net is used for processing continuous time data.

12. (original) A method according to claim 1, wherein the contact type is selected from the group consisting of touch by a stylus and touch by a finger.

13. (original) A method according to claim 12, wherein the measuring step comprises measuring the frequency content of the measured bending wave signal to determine the contact type.

14. (original) A method according to claim 1, wherein the measuring step comprises measuring the frequency content of the measured bending wave signal to determine the contact type.

15. (original) A method according to claim 1, wherein the member has a complex shape, and the processing step comprises using an adaptive algorithm to derive information relating to the contact from the measuring bending wave signal.

16. (original) A method according to claim 15, wherein the adaptive algorithm is implemented in a neural net.

17. (canceled)

18. (original) A method according to claim 1, wherein the bending wave vibration in the member is caused by background noise.

19. (original) A method according to claim 1, further comprising the step of comparing the measured bending wave signal with a reference signal to identify when contact is made.

20. (currently amended) A method according to claim 1, wherein the measuring step comprises measuring the ~~changed~~ bending wave vibration at an edge of the member.

21. (currently amended) A method according to claim 1, wherein the measuring step comprises measuring the ~~changed~~ bending wave vibration at a position spaced from the edges of the member.

22. (canceled)

23. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the effect of the contact is reflective, such that at least some of the generated bending wave vibration is reflected by the contact to produce a change in the generated bending wave vibration in the member.

24. (original) A method according to claim 23, wherein the effect of the contact on the generated bending wave vibration is measured using indirect excitation from at least one boundary reflection.

25. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the effect of the contact is absorbing, such that at least some of the generated bending wave vibration is

absorbed by the contact to produce a change in the generated bending wave vibration in the member.

26. (original) A method according to claim 25, wherein the effect of the contact on the generated bending wave vibration is measured using indirect excitation from at least one boundary reflection.

27. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the generated bending wave vibration is not acoustically obvious.

28. (original) A method according to claim 27, wherein the generated bending wave vibration simulates background noise.

29. (original) A method according to claim 27, wherein the generated bending wave vibration is outside the audible frequency range.

30. (original) A method according to claim 29, wherein the generated bending wave vibration is in the ultrasonic frequency range.

31. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the generated bending wave vibration creates an acoustic output in the member, which acts as an acoustic radiator of a loudspeaker.

32. (original) A method according to claim 31, wherein the processing step comprising isolating undesired signals from the changed bending wave vibration produced by the contact.

33. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the processing step comprises isolating undesired signals from the changed bending wave vibration produced by the contact.

34. (canceled)

35. (currently amended) A method according to claim [[22]] 103, wherein the correction applied is based on a dispersion relation of the material of the member.

36. (previously presented) A method according to claim 35, wherein the dispersion relation is modeled by using the bending wave equation in combination with known physical parameters of the material of the member.

37. (original) A method according to claim 35, wherein the dispersion relation is measured by using a laser vibrometer to create an image of the vibration pattern in the member for a number of given frequencies to give the dispersion relation in the frequency range of interest.

38. (original) A method according to claim 35, wherein the dispersion relation is measured using a self-measuring scheme which is incorporated into the contact sensitive device.

39. (currently amended) A method according to claim [[22]] 103, wherein the information relating to the contact comprises the location of the contact.

40. (currently amended) A method according to claim [[22]] 103, wherein the information relating to the contact comprises the pressure of the contact.

41. (currently amended) A method according to claim [[22]] 103, wherein the information relating to the contact comprises the size of the contact.

42. (currently amended) A method according to claim [[22]] 103, wherein movement of the contact on the member generates a continuous signal which is affected by the location, pressure and speed of the contact on the member, and continuous time data from the continuous signal is used to derive additional information relating to the contact.

43. (original) A method according to claim 42, wherein a neural net is used for processing continuous time data.

44. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the contact type is selected from the group consisting of touch by a stylus and touch by a finger.

45. (original) A method according to claim 44, wherein the measuring step comprising measuring the frequency content of the measured bending wave signal to determine the contact type.

46. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the measuring step comprises measuring the frequency content of the measured bending wave signal to determine the contact type.

47. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the member has a complex shape, and the processing step comprises using an adaptive algorithm to derive information relating to the contact from the measuring bending wave signal.

48. (original) A method according to claim 47, wherein the adaptive algorithm is implemented in a neural net.

49. (currently amended) A method according to claim [[22]] <u>103</u>, further comprising the step of comparing the measured bending wave signal with a reference signal to identify when contact is made.

50. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the measuring step comprises measuring the changed bending wave vibration at an edge of the member.

51. (currently amended) A method according to claim [[22]] <u>103</u>, wherein the measuring step comprises measuring the changed bending wave vibration at a position spaced from the edges of the member.

52. (previously presented) A method of determining information relating to a contact on an active contact sensitive device comprising the steps of:

providing a panel-form member capable of supporting bending wave vibration,

generating bending wave vibration in the member from one location on the member to probe for information relating to a contact,

contacting the member at a discrete location to produce a change in the generated bending wave vibration in the member,

measuring the changed bending wave vibration in the member at two locations on the member to determine a measured bending wave signal, and

processing the measured bending wave signal to calculate information relating to the contact including applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

53. (original) A method according to claim 52, wherein the information relating to the contact comprises the location of the contact.

54. (original) A method according to claim 52, wherein the information relating to the contact comprises the pressure of the contact.

55. (original) A method according to claim 52, wherein the information relating to the contact comprises the size of the contact.

56. (original) A method according to claim 52, wherein movement of the contact on the member generates a continuous signal which is affected by the location, pressure and speed of the contact on the member, and continuous time data from the continuous signal is used to derive additional information relating to the contact.

57. (original) A method according to claim 56, wherein a neural net is used for processing continuous time data.

58. (original) A method according to claim 52, wherein the contact type is selected from the group consisting of touch by a stylus and touch by a finger.

59. (original) A method according to claim 58, wherein the measuring step comprises measuring the frequency content of the measured bending wave signal to determine the contact type.

60. (original) A method according to claim 52, further comprising the step of comparing the measured bending wave signal with a reference signal to identify when contact is made.

61. (original) A method according to claim 52, wherein the measuring step comprises measuring the changed bending wave vibration at two edges of the member.

62. (currently amended) A passive contact sensitive device comprising:

a member capable of supporting bending wave vibration,

at least one sensor coupled to the member for measuring bending wave vibration in the member, and

a processor operatively coupled to the at least one sensor for processing information relating to [[the]] a contact made on a surface on the member from the generation of bending wave vibration in the member created by the contact and measured by the at least one sensor and for applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

63. (canceled)

64. (previously presented) A contact sensitive device according to claim 62, wherein the member is a display screen.

65. (original) A contact sensitive device according to claim 64, wherein the display screen is a liquid crystal display screen, and the at least one sensor comprises liquid crystals of the display screen which sense bending wave vibration in the member.

66. (original) A contact sensitive device according to claim 62, wherein the at least one sensor is mounted at an edge of the member.

67. (original) A contact sensitive device according to claim 62, wherein the at least one sensor is mounted on the member spaced from an edge of the member.

68. (original) A contact sensitive device according to claim 62, wherein the member is transparent.

69. (original) A contact sensitive device according to claim 62, wherein the member is in the form of a panel.

70. (original) A contact sensitive device according to claim 62, wherein the member has uniform thickness.

71. (canceled)

72. (original) A mobile phone comprising a contact sensitive device according to claim 62.

73. (original) A lap-top comprising a contact sensitive device according to claim 62.

74. (original) A personal data assistant comprising a contact sensitive device according to claim 62.

75. (canceled)

76. (currently amended) A contact sensitive device according to claim [[98]] <u>106</u>, wherein information relating to the contact is calculated by comparing the measured bending wave signal to a reference signal before contact is made.

77. (currently amended) A contact sensitive device according to claim [[98]] <u>106</u>, wherein the emitting transducer has dual functionality and acts as the emitting transducer and the at least one sensor.

78. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the emitting transducer and the at least one sensor are placed with a relatively equal spacing around the periphery of the member.

79. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the emitting transducer and the at least one sensor are located at the same point and are coupled into orthogonal physical properties.

80. (canceled)

81. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the member is a display screen.

82. (original) A contact sensitive device according to claim 81, wherein the display screen is a liquid crystal display screen, and the at least one sensor comprises liquid crystals of the display screen which sense bending wave vibration in the member.

83. (canceled)

84. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the at least one sensor is mounted at an edge of the member.

85. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the at least one sensor is mounted on the member spaced from an edge of the member.

86. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the member is transparent.

87. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the member is in the form of a panel.

88. (currently amended) A contact sensitive device according to claim [[98]] 106, wherein the member has uniform thickness.

89. (canceled)

90. (currently amended) A mobile phone comprising a contact sensitive device according to claim [[98]] 106.

91. (currently amended) A lap-top computer comprising a contact sensitive device according to claim [[98]] 106.

92. (currently amended) A personal data assistant comprising a contact sensitive device according to claim [[98]] 106.

93. (previously presented) An active contact sensitive device incorporating a loudspeaker, the device comprising:

a member capable of supporting bending wave vibration and forming an acoustic radiator when excited,

an exciter coupled to the member for exciting bending wave vibration in the member to probe for information relating to a contact made on a surface of the member, and to cause the member to produce an acoustic output,

at least one sensor coupled to the member for measuring bending wave vibration in the member, and

a processor operatively coupled to the at least one sensor for processing information relating to the contact from a change in bending wave vibration in the member produced by the contact and measured by the at least one sensor and for applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

94. (original) A contact sensitive device according to claim 93, wherein the member is in the form of a panel.

95. (original) A contact sensitive device according to claim 94, wherein the member has uniform thickness.

96. (original) A contact sensitive device according to claim 95, wherein the at least one sensor is mounted at an edge of the member.

97. (original) A contact sensitive device according to claim 95, wherein the at least one sensor is mounted on the member spaced from an edge of the member.

98. (canceled)

99. (currently amended) A method of determining information relating to a contact on a passive contact sensitive device comprising the steps of:

providing a member capable of supporting bending wave vibration,

contacting the member ~~at a discrete location~~ to generate bending wave vibration in the member by frictional movement of the contact,

measuring the bending wave vibration in the member to determine a measured bending wave signal, and

processing the measured bending wave signal to calculate information relating to the contact.

100. (previously presented) A method according to claim 99, further comprising the step of applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

101. (new) A method of determining information relating to a contact on a contact sensitive device comprising:

contacting a member capable of supporting bending waves to produce a change in bending wave vibration in the member;

measuring the changed bending wave vibration in the member to determine a measured bending wave signal; and

processing the measured bending wave signal to calculate information relating to the contact, wherein processing the measured bending wave signal comprises applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

102. (new) A method according to claim 101 wherein the contact sensitive device is passive and the change in bending wave vibration in the member induced by the contact is an excitation to bending wave vibration in the member.

103. (new) A method according to claim 101 wherein the contact sensitive device is active and the method further comprises generating bending wave vibration in the member to probe for information relating to the contact, and wherein the change in bending wave vibration is a response of the generated bending wave vibration to the contact.

104. (new) A contact sensitive device comprising:

a member capable of supporting bending wave vibration;

at least one sensor coupled to the member for measuring bending wave vibration in the member, and

a processor operatively coupled to the at least one sensor for processing information relating to a contact made on a surface on the member from a change in bending wave vibration in the member caused by the contact and measured by the at least one sensor and for applying a correction to convert the measured bending wave signal to a propagation signal from a non-dispersive wave source.

105. (new) A contact sensitive device according to claim 104 wherein the contact sensitive device is passive and the change in bending wave vibration in the member induced by the contact is an excitation to bending wave vibration in the member.

106. (new) A contact sensitive device according to claim 104 further comprising:

an emitting transducer for exciting bending wave vibration in the member to probe for information relating to the contact, and

wherein the change in bending wave vibration is a response of the excited bending wave vibration to the contact.